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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT	:	WRIGHT ET AL.
SERIAL NO.	:	10/823,195
FILED	:	DECEMBER 4, 2004
TITLE	:	CONNECTION BETWEEN A WALL AND A PIPE
EXAMINER	:	LAN NGUYEN
GROUP ART UNIT	:	3683

DECLARATION UNDER C.F.R. 1.132

Honorable Commissioner for Patents and Trademarks
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DECLARATION OF INVENTOR IN SUPPORT OF PATENTABILITY

I, John Alexandre BOUDRY, a British subject of Poplar Farm, Buxhall Road, Brettenham, Suffolk, IP7 &PA, United Kingdom, declare:-

1. I am the Chief Executive of PetroTechnik Limited, PetroTechnik House, Olympus Close, Whitehouse Industrial Estate, IPSWICH, Suffolk, IP1 5LN, United Kingdom, a position I have held since the company was formed in 1991. I make this declaration from my own personal knowledge.

2. PetroTechnik is the leading worldwide innovator, provider and distributor of UPP polyethylene containment piping and tightness testing systems for the storage and transfer of flammable liquids underground. PetroTechnik also designs, manufactures and distributes CZ above and below ground storage tanks and pressure vessels.

Petrotechnik's UPP System is a complete leak tight, underground pipework and containment system that will last the lifetime of any site ensuring cost efficient fuel delivery and complete protection for the surrounding environment. Manufactured from high-density polyethylene, the UPP system is extremely tough, corrosion resistant and, once installed, should need no further maintenance.

3. PetroTechnik was the first company to use polyethylene pipe for the petroleum market and the first to launch an automated electrofusion process. Now UPP is widely used in a number of markets including aviation, marine and mining and eight million metres of UPP pipe have been installed in over 30,000 sites across 140+ countries.

4. I have seen the latest Office Action from the USPTO and I have seen copies of the claims currently under examination as well as the cited prior art that the Examiner is relying on, namely US5,295,760 (Rowe), US4,894,521 (Evans) and US5,655,564 (Gavin). I understand that the Examiner has concluded that certain claims, including independent Claim 22, are not inventive over Rowe in light of Evans. I believe that when arriving at this conclusion the Examiner was not in possession of all the relevant facts, including widely held prejudices in our industry, and as a consequence has reached an incorrect conclusion.

5. When we began the project which led to the invention as now claimed in US10/823,195 there was a widely held view amongst purchasers, specifiers and designers of underground pipework systems that the seal between a subterranean chamber or sump and any pipe entering or leaving that chamber/sump, had to incorporate some flexibility in order to accommodate movement between the fitting and the chamber. This is because there is inevitably movement between the chamber and the pipe over time. This movement can result from one or more factors such as the ground settling or the water table rising. Thus, at that time, back in 1997, our whole industry was

predisposed **against** the idea of welding an entrance fitting directly onto the wall of a chamber. This predisposition is described by Rowe in column 1, lines 47 to 55. "Rigidly welding the . . . entrance fitting to the chamber wall is not an ideal arrangement since ground shifting often occurs which could rupture the weld or pipe." I could not put it more clearly or more accurately than it is put by Rowe.

6. It must also be appreciated that as well as movement between the pipe and the chamber wall, there is another factor to contend with. That is, every time a hole or aperture is formed in a chamber wall, the structural integrity of that chamber is significantly weakened. In most underground fuel delivery installations there will be multiple entry/exit points in each chamber. Because the integrity of the chamber wall itself is compromised whenever an entry fitting is used, there is a much greater risk that the chamber wall will rupture if the wall is put under stress by even relatively small movements between the pipe relative to the chamber. This reinforces the prejudice of that time which dictated that welding directly to the chamber wall is to be avoided, and that components which permit the joint with the wall to have a degree of 'flex' are essential. This degree of flexure has in the past been provided by placing rubber gaskets on either side of the chamber wall with a flanged fitting designed to be bolted into place. These gaskets act, in effect, like a shock absorber to accommodate movement and protect the chamber wall.

7. By careful experimentation we discovered that, against all our expectations and completely contrary to the thinking in our industry, by having a sleeve rigidly connected to and extending away from at least one side of a flange, that the resulting chamber with its electrofused entry coupling is stronger than a chamber with no penetrations in the chamber walls. My Exhibit A shows in picture A1 an assembly comprising one chamber (on the far left), connected in series to two sumps. The chamber wall to pipe seals have been made in each case using fittings as described and as claimed in

US10/823,195. The complete assembly, with lids, has been subjected to a vacuum test where a vacuum of 60 mbar was drawn on the complete assembly. All of the chamber and sump walls which contain our fittings passed the test completely unaffected. However, the side wall of the sump at the end of the assembly and which contained no penetrations was permanently deformed. This is shown more clearly in picture A2.

8. The vacuum test result described above was an entirely unexpected result and again was completely contrary to the thinking in our industry before we invented our new fitting. It was always considered that any penetration through the wall of a chamber or sump weakened that wall considerably.

9. In addition, the Examiner should be aware that simple flange seals using bolts and with a gasket either side of the chamber wall have been known for decades. Similarly, the technique of electrofusing two plastic components, made of an electrofusible plastic material, has also been known for decades. Since these two concepts have been known for such a long period of time it follows that the present invention cannot be an obvious thing to do, or else someone would surely have done it already. And the reason why no one did it or contemplated it is explained by Rowe. It was considered a pre-requisite that the seal had to "*allow shifting or angling of the pipe at the point of penetration through the wall of the chamber*" (Rowe, column 2 (65 - 66).

10. I note that the Examiner contends in Paragraph 5 of his report that Rowe does not teach against welding his own fitting because of the passage at column8, lines 18 to 34 of Rowe. I believe in fact that the exact opposite is true for the following reasons. Firstly, Rowe states "many **minor** changes in the specific structures described may clearly be made without departing from the scope of the invention." The Examiner must appreciate that replacing a bolted gasket seal with a welded seal is a major not a minor change. Furthermore, the need for a second rubber boot 24 would be made entirely

redundant. In fact, other than the insert means, every element described in Rowe's Claim 1 would be rendered unnecessary by welding the flange of the entrance fitting to the chamber wall. This change is so fundamental that if Rowe had meant the passage at colum 8 to mean this, he would surely have said so.

11. This brings me to another and most important point. The arrangement described and claimed by Rowe is highly complex and involves multiple components, three of them having screw threads. It is therefore expensive to tool up, and to manufacture and is costly to install. It is so complex because it seeks to address an inherent and unavoidable problem in a gasket-type fitting. And Rowe deliberately takes this option because he believes that it is highly undesirable to weld an entrance fitting to the chamber wall. This is very clear evidence that what we have done is inventive.

12. I understand that the Examiner considers certain other claims, such as Claim 54, to be obvious in light of Gavin in view of Evans. Gavin is an entirely unsuitable starting point for the design of a fitting such as ours. Firstly, the Gavin fitting is designed for use in the waste water industry in a distribution box manifold or which is effectively located at ground level, as illustrated in Figure 6 of Gavin. Such a fitting would be entirely useless in the chemical or petrochemical industry. Whilst a fitting as described by Gavin might possibly keep waste water from getting out of a distribution box, there is no way that it can prevent water egress **into** the distribution box. Whilst this is not a problem in the water industry, it would be a disaster in the chemical or petrochemical industry. By providing a flexible frustoconical sealing member internal to the fitting, allowance is made for shifting or angling of the pipe with respect to the wall. However, such a seal would never withstand a vacuum test at 60 mbar. Nor would it be visible to carry out visual checks during routine maintenance once it has been installed.

13. In contrast, the seal between the fitting and the pipe in our invention is made between the outside of the sleeve and the outside of the pipe passing through the sleeve. This is entirely different to the arrangement in Gavin. I understand that this feature has been elucidated in the wording of Claim 54 and other claims as necessary.

14. In summary, no one in our industry would use Gavin as a starting point to design a wall to pipe fitting. Even if one did adopt Gavin, then one would also adopt the internal frustoconical sealing arrangement, because that type of seal is inherent in the Gavin system. No seal whatsoever is formed without it.

15. There is a further point about Evans which I wish to draw to the Examiner's attention. In the present invention we are concerned about a penetration fitting which allows a pipe to **pass through** a chamber wall and which provides a fluid-tight seal between the fitting itself and the chamber wall and which enables a fluid-tight seal to be formed between the fitting and the outside of the pipe passing through that fitting. This ensures that there is no ingress of water or other fluids into the chamber past the fitting and no egress of any spilt fuel out of the chamber. The fitting of the present invention, unlike that of Evans, does not change the integrity of the pipe passing through the chamber wall. Evans on the other hand is firstly not directed to a penetration fitting, but instead to a fitting for providing branching of pipe work and the like. The fitting of Evans has a totally different function to the fitting of the present invention, being a branching fitting rather than a penetration fitting. Secondly, the fitting of Evans substantially changes the integrity of the pipe associated with the fitting, because the external geometry of the pipe is changed as a hole is drilled into the pipe work. There is therefore no reason for the skilled person to look toward this document and even if they did there would be no reason to combine this document as it teaches towards a different type of fitting which changes the integrity of the pipe. Such changes in pipe integrity are to be avoided in

the petroleum industry in which the present invention is employed, especially in view of the strict regulations in place controlling standards in the petroleum industry.

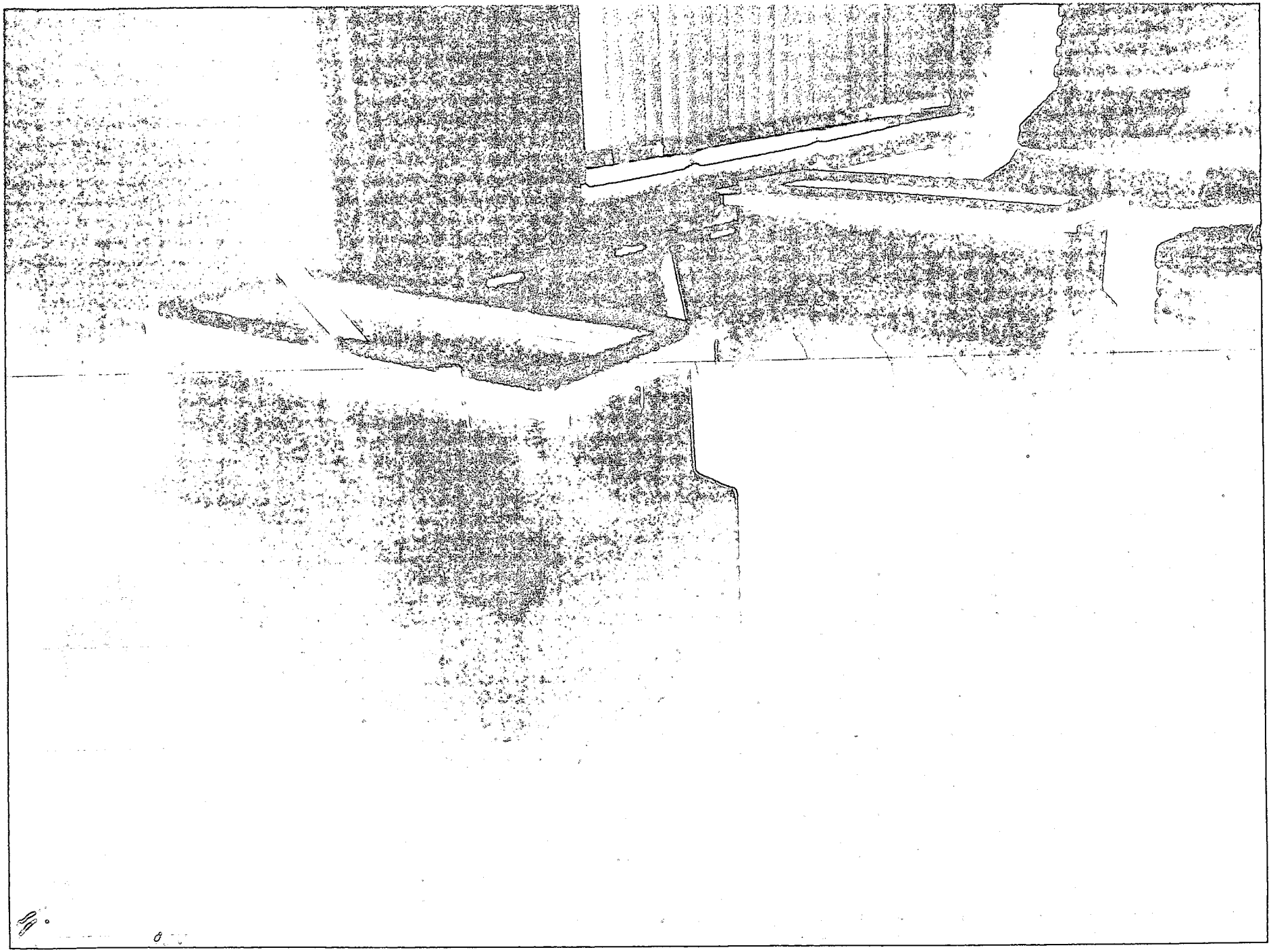
16. Finally I would point out that chambers and sumps are typically formed by rotomolding and are formed from low density polyethylene. Electrofusion fittings on the other hand, are formed by extrusion or injection molding and are formed from high density polyethylene. The traditional view has been that it was not possible to form a satisfactory electrofusion seal between an item of low density and an item of high density polyethylene. Thus, a skilled person in the industry would not have considered that such electrofusion would result in an effective seal. We have unexpectedly proved that long held theory to be wrong.

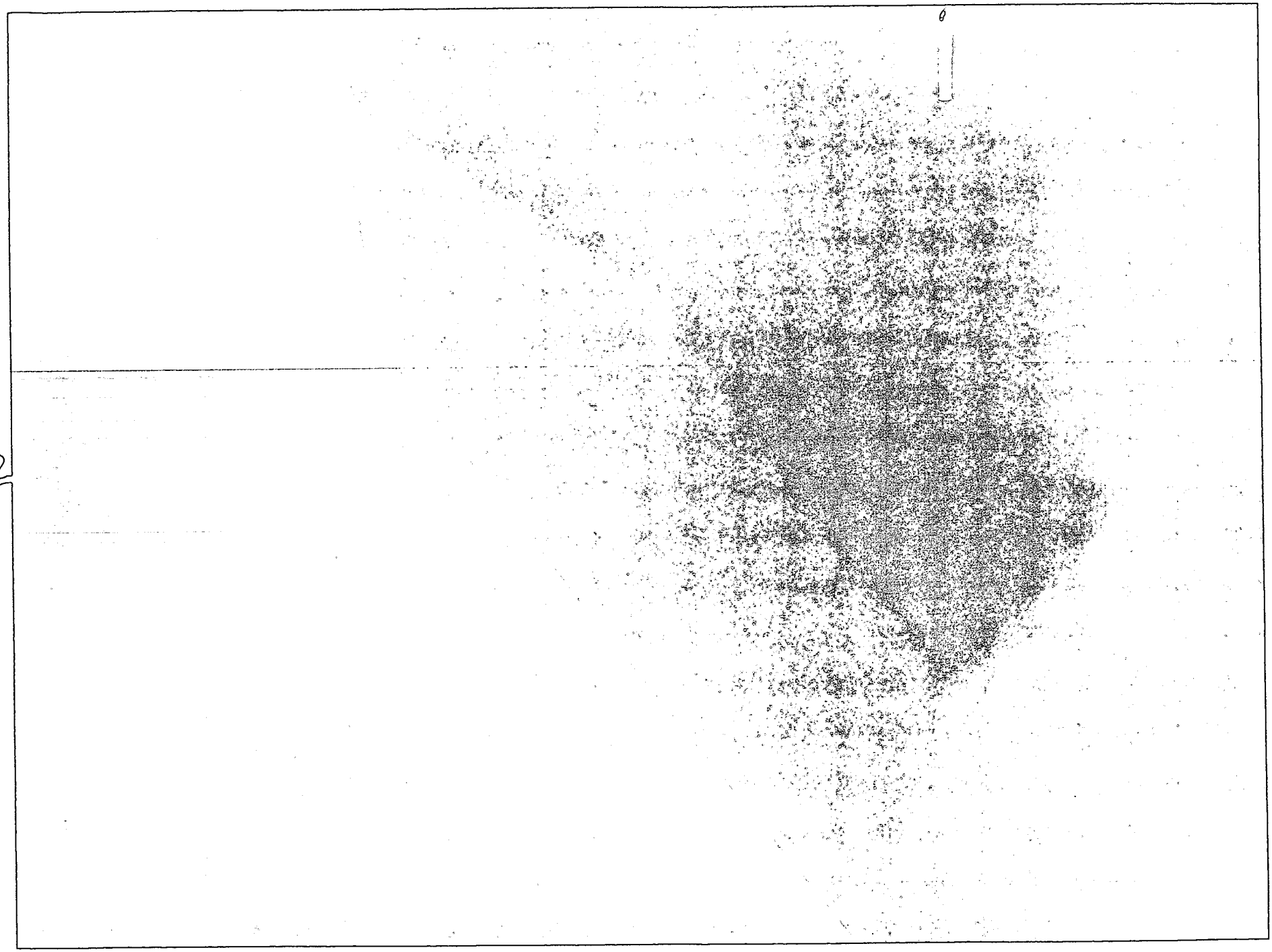
I, John Alexandre Boudry, declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such wilful, false statements may jeopardize the validity of this application or any patent resulting therefrom.

Signed: Date: 2007

JOHN ALEXANDRE BOUDRY

EXHIBIT A




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